

US EPA ARCHIVE DOCUMENT

Silver Creek Cliff Trail Project



Peregrine falcon nesting area

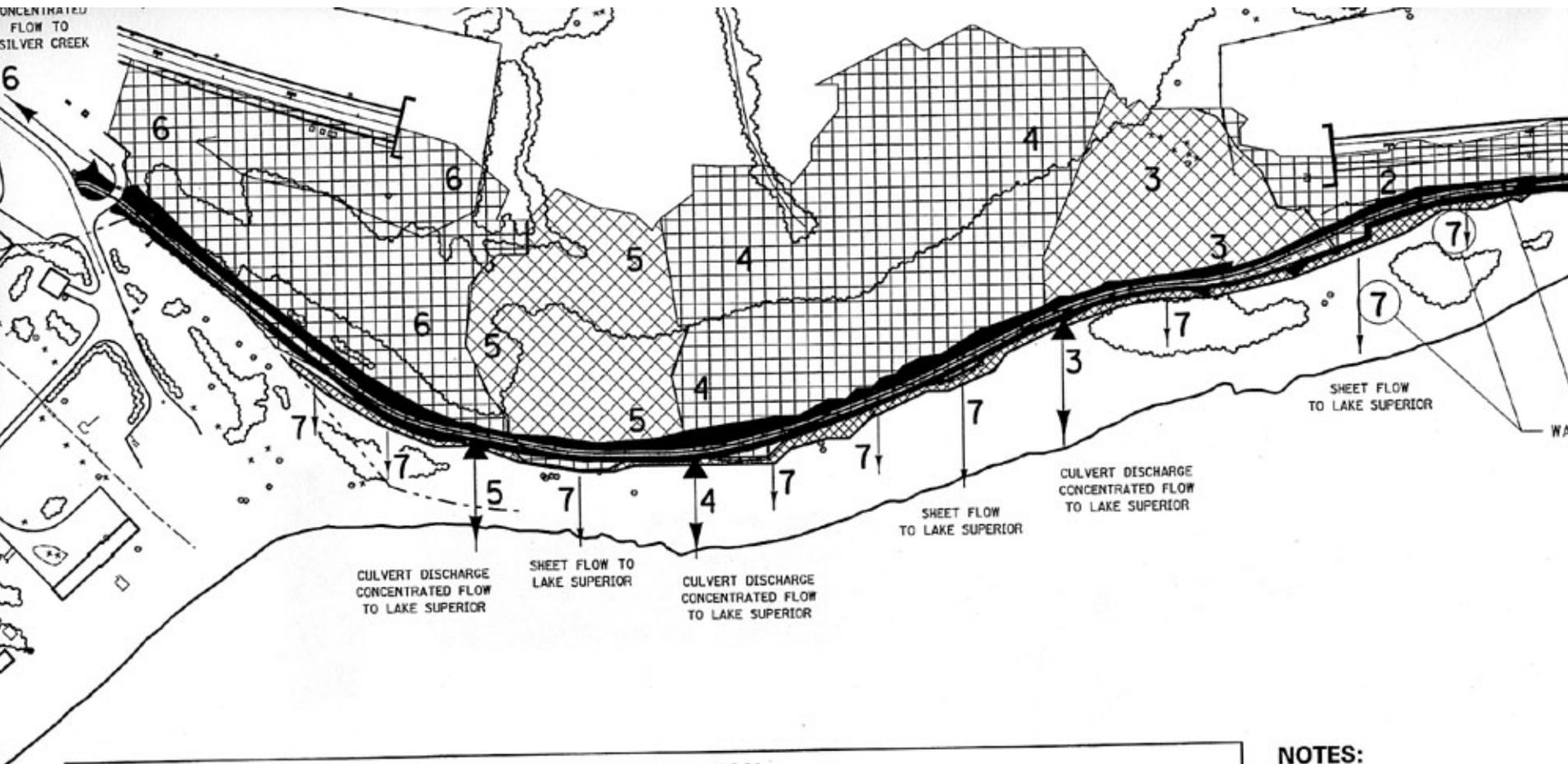
Historic viewshed

Special water
of the state

Rare and
threatened
plants







WATERSHED TABULATION

AREA	SURFACE AREA TOTAL	DISTURBED AREA	FLOW TYPE	RECEIVED BY	AREA	S.Y.	AC.	RAPID STABILIZATION METHOD		
								3	4	5
1	23,630 S. F.	7,285 S. F.	CONCENTRATED	LAKE SUPERIOR	1	809	0.17	X	X①③	X
2	81,497 S. F.	28,678 S. F.	CONCENTRATED	LAKE SUPERIOR	2	3186	0.66	X③④		X③
3	81771 S. F.	5,458 S. F.	CONCENTRATED	LAKE SUPERIOR	3	606	0.13		X①③	X
4	247,193 S. F.	7,744 S. F.	CONCENTRATED	LAKE SUPERIOR	4	860	0.18		X①③	X
5	92,824 S. F.	4,682 S. F.	CONCENTRATED	LAKE SUPERIOR	5	520	0.11		X①③	X
6	190,447 S. F.	12,190 S. F.	CONCENTRATED	SILVER CLIFF CREEK	6	1354	0.28		X①③	X
7		6,660 S. F.	SHEET FLOW	LAKE SUPERIOR	7③	740	0.15		X①②③	

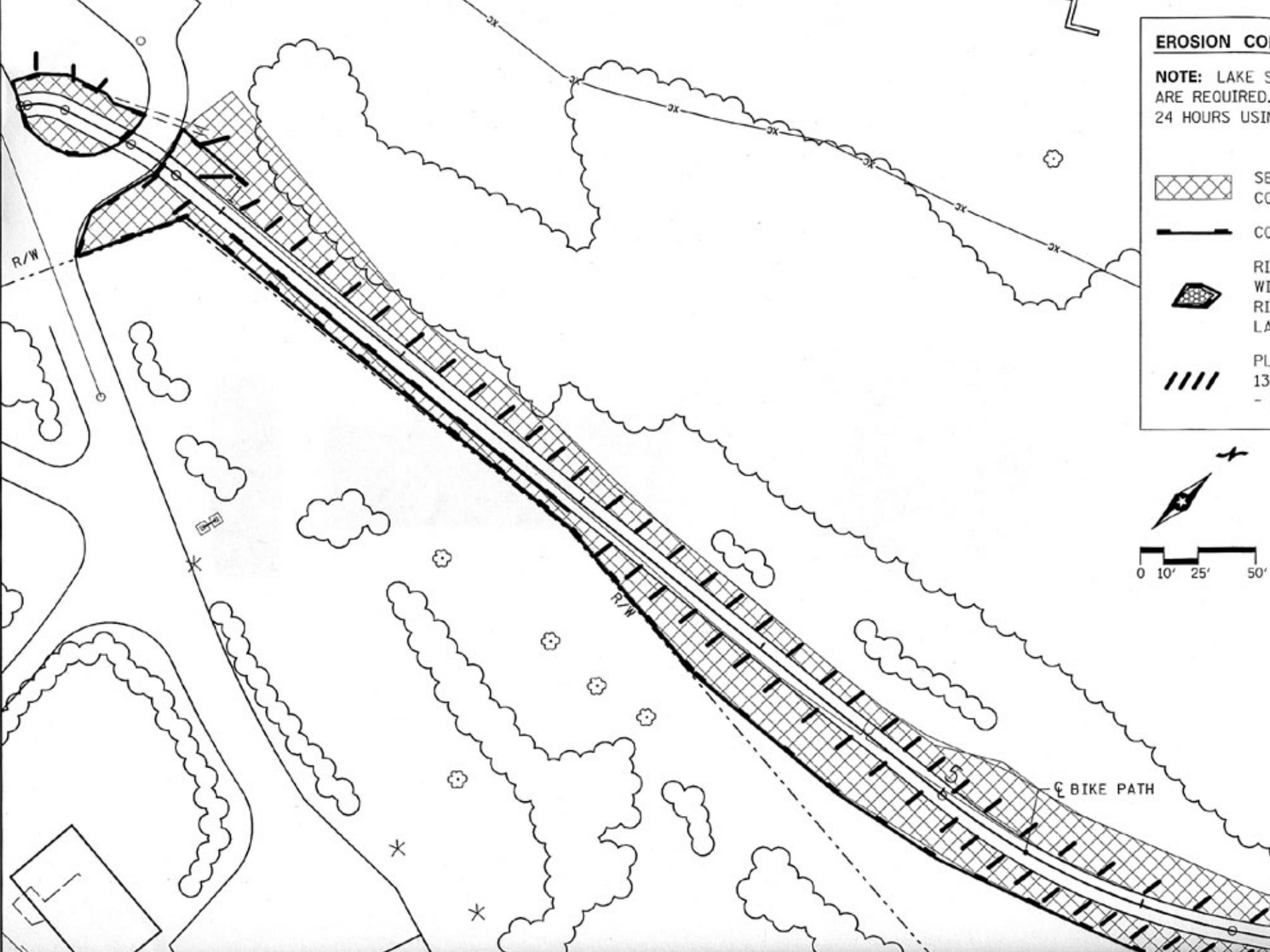
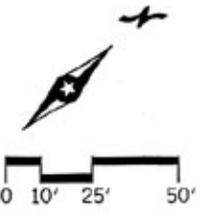
NOTES:

- ① ALL SLOPES AND DISTURBED AREAS MUST BE STABILIZED 200' UPSLOPE
- ② ALL POSITIVE SLOPES TO LAKE SUPERIOR TO BE STABILIZED PROGRESSIVELY WORKING THE AREA FROM THE CREEK
- ③ 1/6 ACRE INCREMENTS WITHIN EXPOSED SOILS - 7 DAYS
- ④ ALL TOPSOIL STOCKPILES WILL BE STABILIZED

EROSION CONTROL

NOTE: LAKE S...
ARE REQUIRED.
24 HOURS USIN...

-  SE...
-  CO...
-  RI...
-  WI...
-  RI...
-  LA...
-  PL...
-  13...
-  -











TBM
↑





July 13, 2006



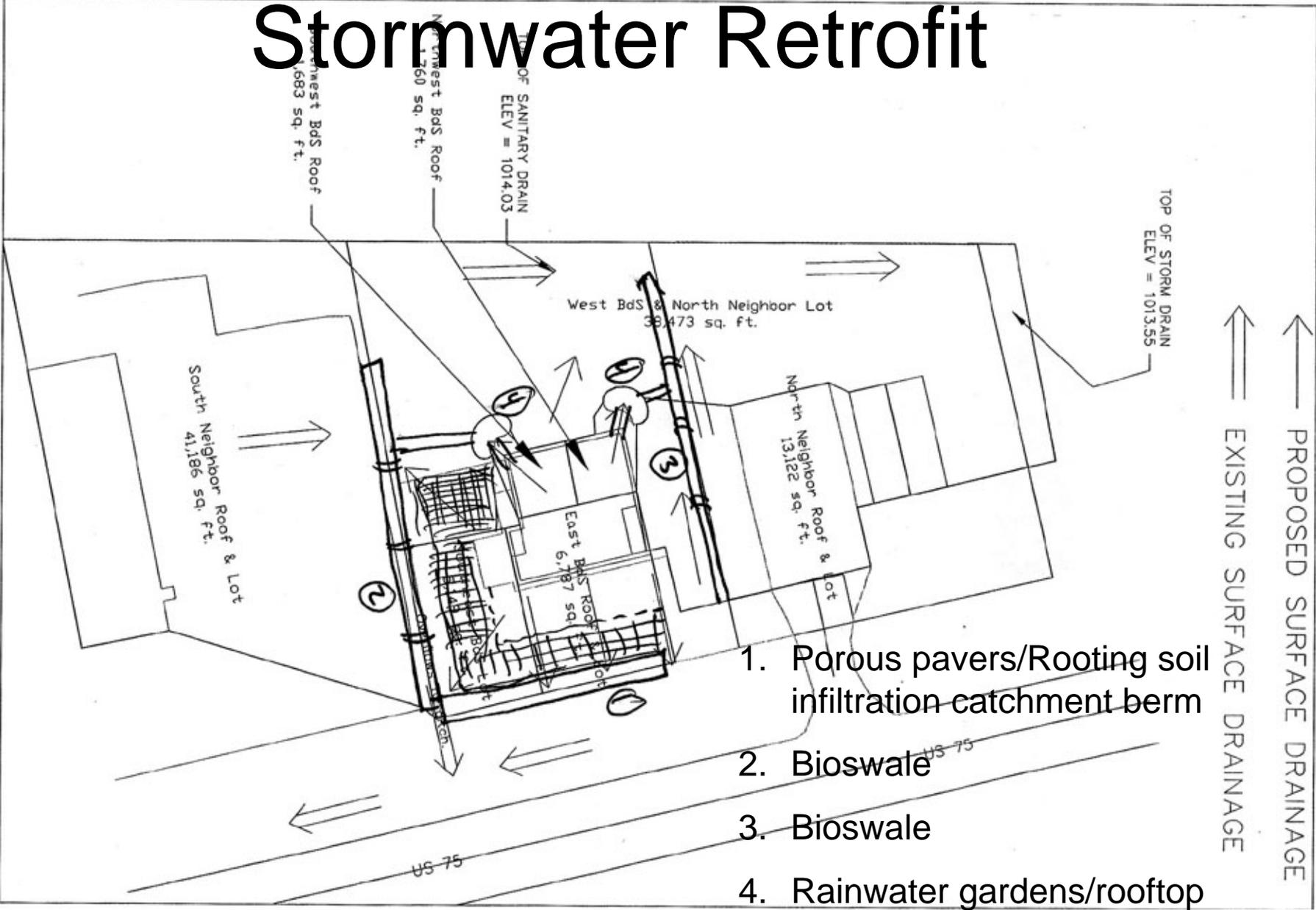
Compost Calculations

- 270 yd³ per acre = 2 inches ***loose fill***
- 1 lb compost will capture 2.5 lbs water = 0.3 gallons (2.5 to 8 times its weight)
- 1 yd³ compost = 900 lbs
- 2 inches compost = 50 lbs/yd² = 15 gallons water/yd² = 2.5 inch rain storage
- Assume 60 percent water typical concentration, 1.5 inches captured/yd²

Loose fill version 2



Stormwater Retrofit

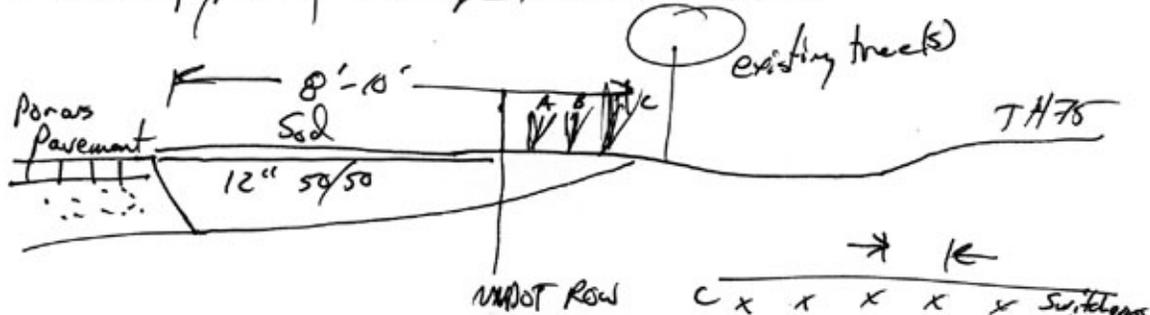


1. Porous pavers/Rooting soil infiltration catchment berm
2. Bioswale
3. Bioswale
4. Rainwater gardens/rooftop capture (disconnect)

← PROPOSED SURFACE DRAINAGE
 ⇔ EXISTING SURFACE DRAINAGE

DRAWING NO. SDCS DE SIOUX WATERSHED DISTRICT BSSUD Building Lot WATERWORKS	JOB Engineering Inc. 700 N. 1st St. Sioux Falls, SD 57104 PHONE: 605-708-1234 FAX: 605-708-1234	DATE: 07/11/06 CHECKED BY: [Name] DESIGNED BY: [Name]	DATE: 07/11/06 CHECKED BY: [Name] DESIGNED BY: [Name]
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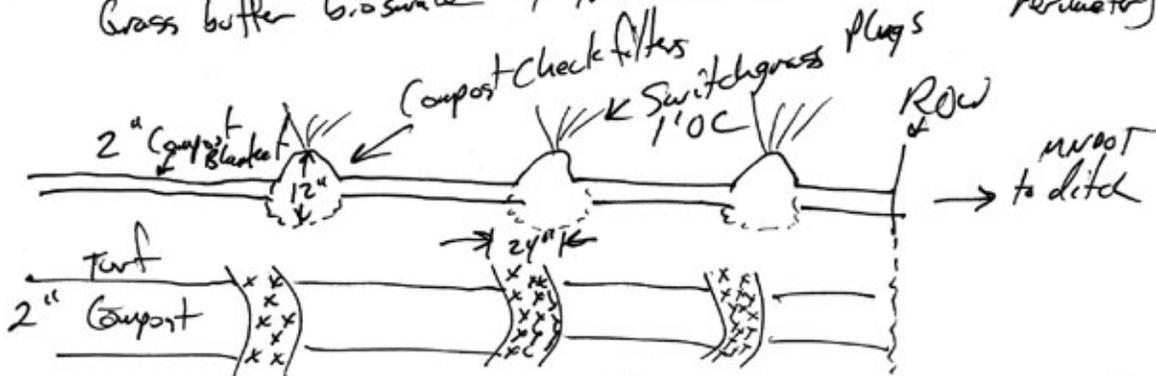
① Roof Top Parking Drainage to MUDOT Ditch



Material 50/50 Topsoil (Compost blend) 1'0C
 ~125' x 8' x ~10"
 30 yds³ Compost/Topsoil will treat 5000 gallons H₂O

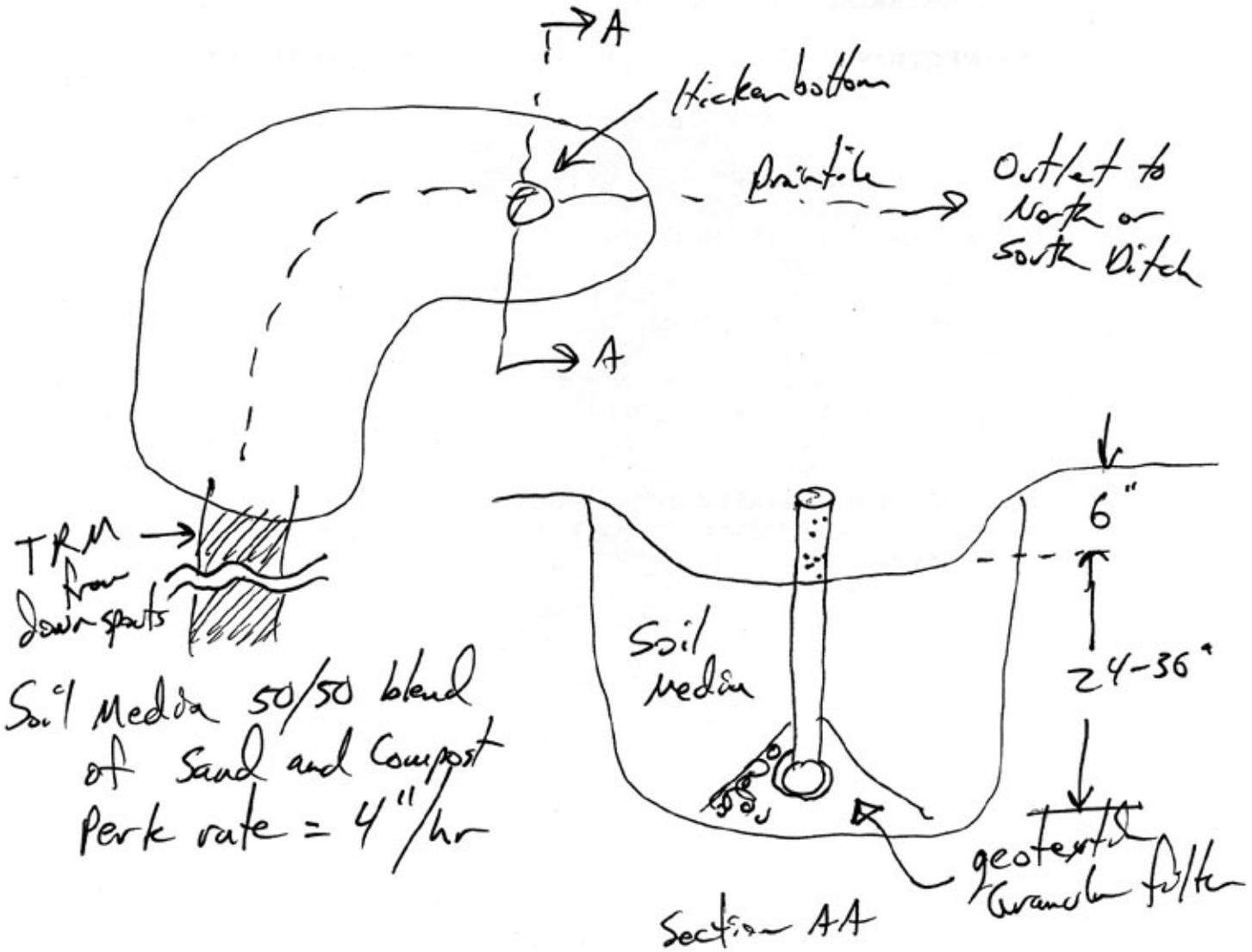


② South Side Drainage to MUDOT Ditch
 Grass buffer bioswale w/ treatment check filters (to wetland perimeter)



← 200 LF →
 12 yd³ for bioswale ⇒ 1300 gallons H₂O treatment
 2 yd³ for check filters ⇒ 238 gallons " "
 Swale Seed Mix: 328 or BWSR w/ wet meadow

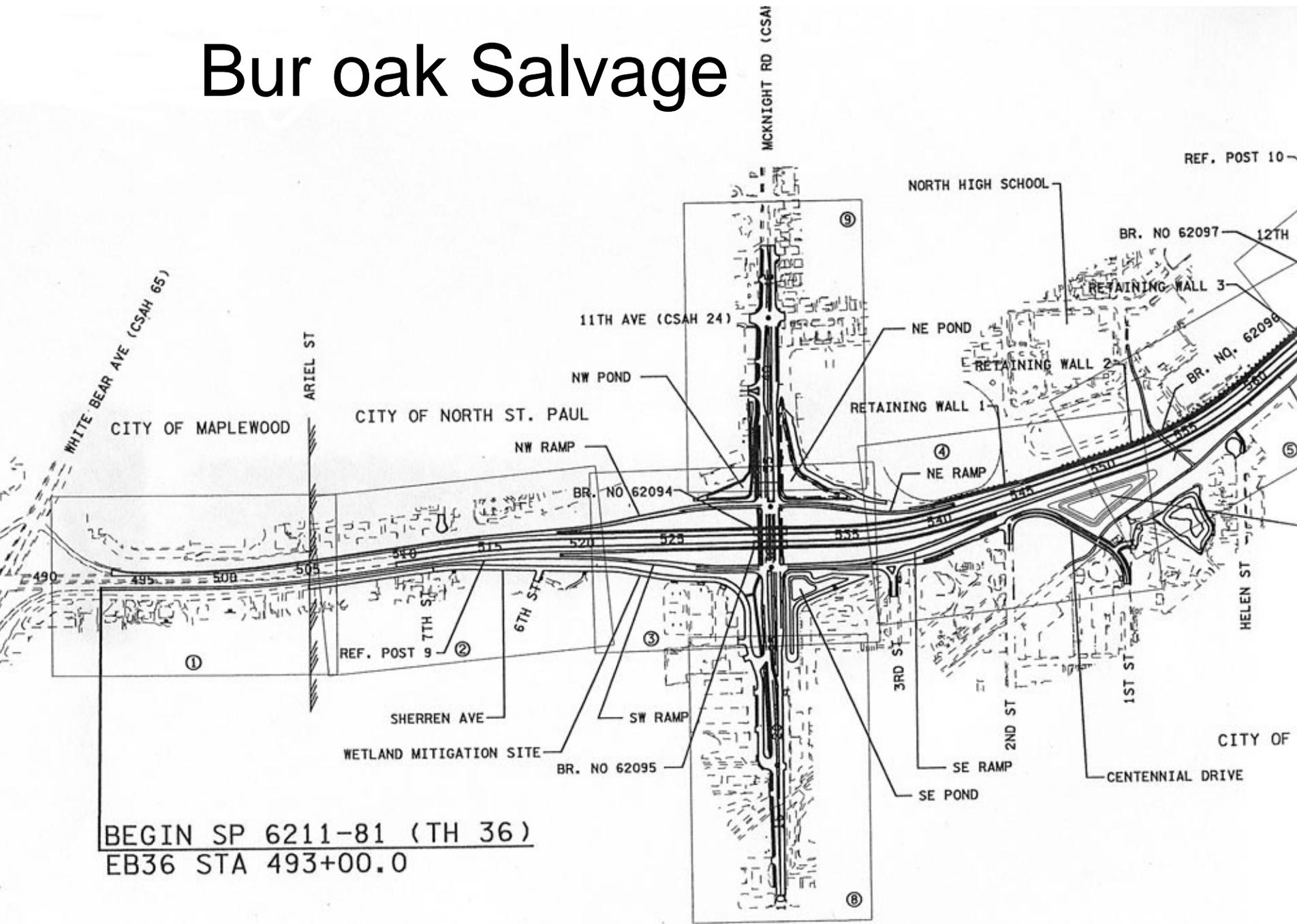
④ Rainwater Gardens



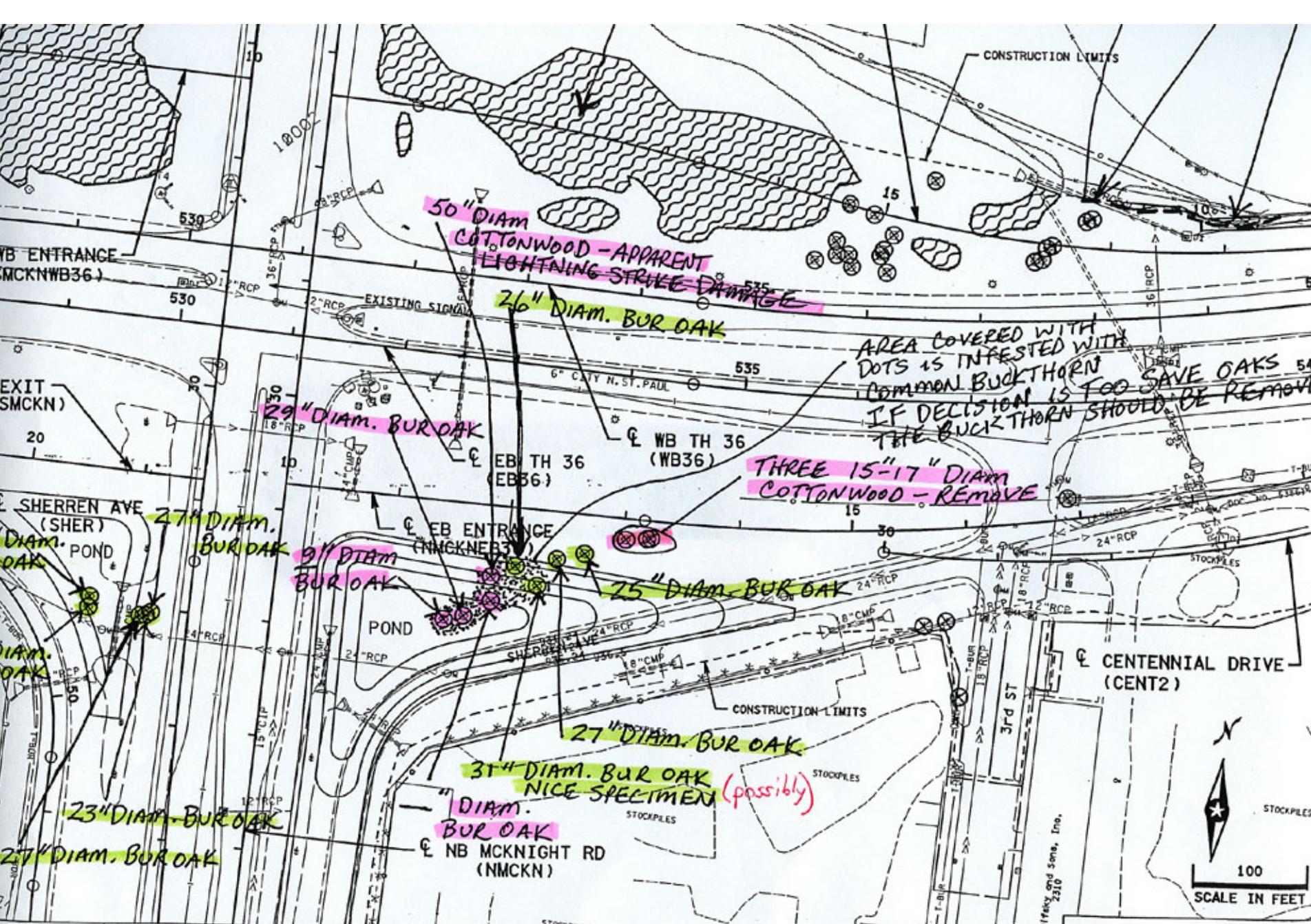
Soil Media 50/50 blend
of Sand and Compost
Perk rate = 4"/hr

Assume $12 \times 24'$ \Rightarrow will treat 3240 gallons ACO

Bur oak Salvage



BEGIN SP 6211-81 (TH 36)
EB36 STA 493+00.0



50" DIAM COTTONWOOD - APPARENT LIGHTNING STRIKE DAMAGE

26" DIAM. BUR OAK

AREA COVERED WITH DOTS IS INFESTED WITH COMMON BUCKTHORN IF DECISION IS TO SAVE OAKS THE BUCKTHORN SHOULD BE REMOVED

THREE 15"-17" DIAM COTTONWOOD - REMOVE

29" DIAM. BUR OAK

27" DIAM. BUR OAK

9" DIAM BUR OAK

25" DIAM BUR OAK

27" DIAM. BUR OAK

31" DIAM. BUR OAK NICE SPECIMEN (possibly)

DIAM. BUR OAK

23" DIAM. BUR OAK

27" DIAM. BUR OAK





block
Vinyl Sheet Pile Wall
Approx. 240 lf

EB ENTRANCE
(NMCKNEB36)

block
Vinyl Sheet Pile Wall
Approx. 320 lf

A

932.24 935.24

931.24

926.24

926.24

936.5

Existing Anchor
Block Wall

STOCKPILES

STOCKPILES

Proposed Sanitary Sewer (18" PVC)

STOCKPILES

STOCKPILES

3RD ST



10

25

15

30

1-6-10

1-8-10

1-8-10

1-8-10

1-8-10

1-8-10

1-8-10

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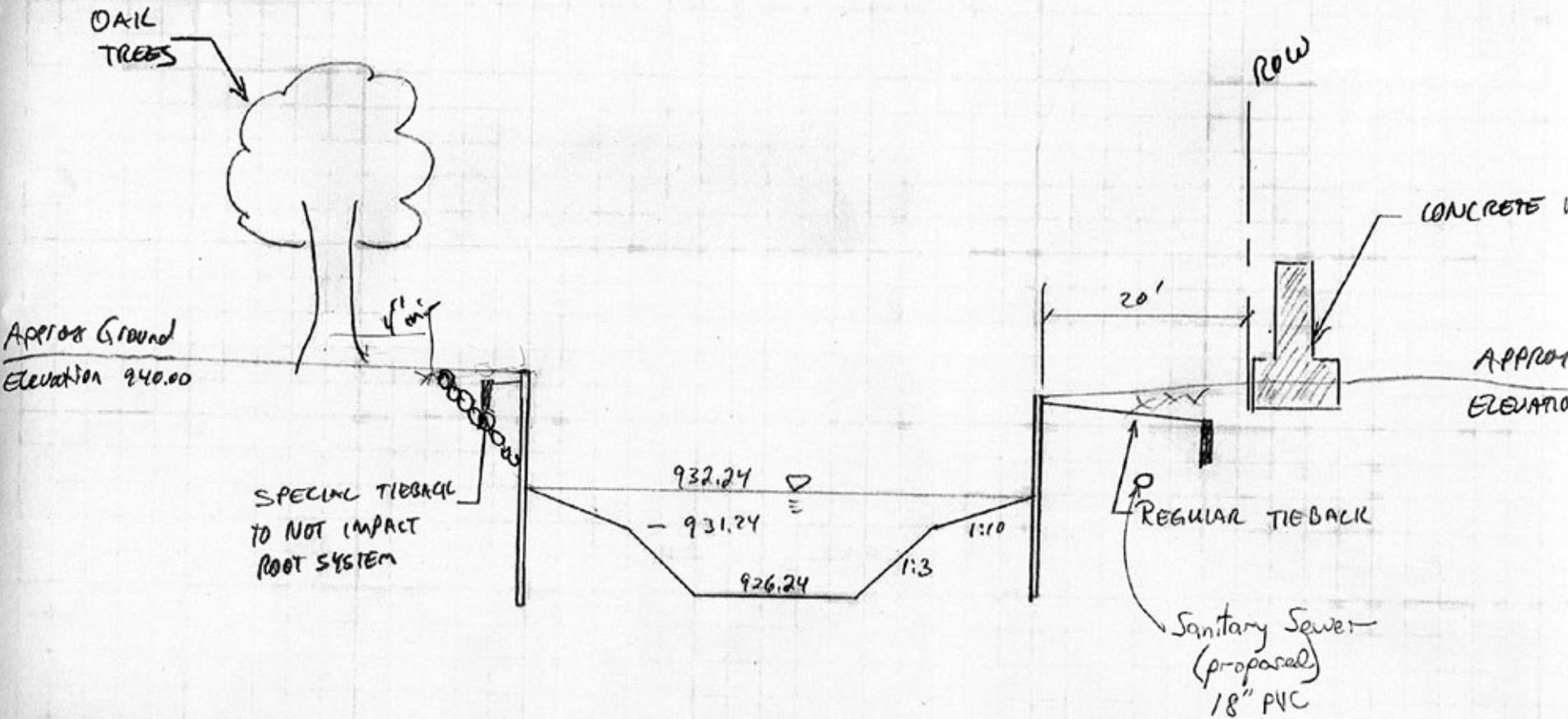
1-8-10

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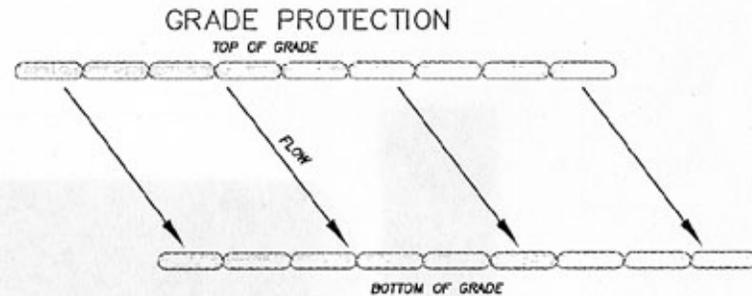
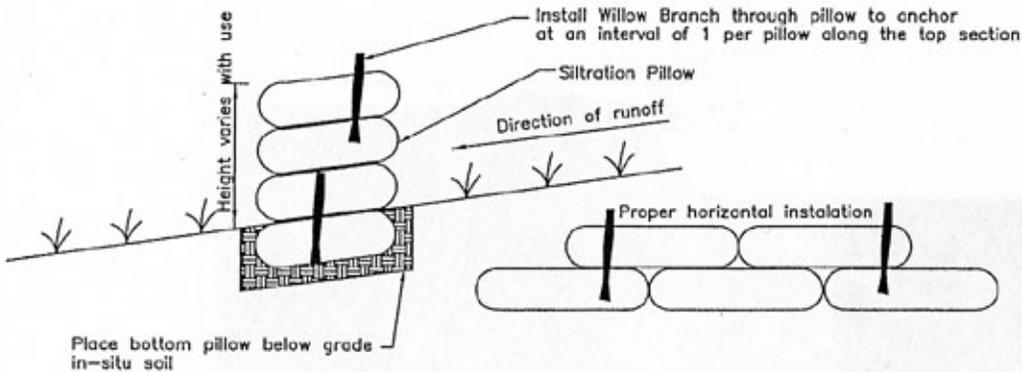
CROSS SECTION A-A



EROSION CONTROL NOTES

EROSION CONTROL NOTES & IMPLEMENTATION SCHEDULE

- (1) PRIOR TO ROUGH GRADING, INSTALL SILTRATION PILLOWS IN LOCATIONS SHOWN
ADDITIONAL SILTRATION PILLOWS WILL BE REQUIRED WHERE LOCAL CONDITIONS REQUIRE
- (2) PROVIDE NATIVE TOPSOIL, SEED, AND MULCH ANCHORED WITH A STRAIGHT SET DISC WITHIN 14 DAYS OF FINAL GRADING.
- (3) MAINTAIN AND REPAIR SILTRATION PILLOWS (INCLUDE THE REMOVAL OF ACCUMULATED SILT WHEN 1/3 OF THE PILLOW IS REACHED) UNTIL VEGETATION IS ESTABLISHED.
- (4) USE MnDOT SEED MIX 30B-WF OR NEW MnDOT 328 FOR PONDING/INFILTRATION AREAS, AND USE MnDOT SEED MIX 310 FOR PONDS.
- (5) REMOVE SEDIMENT FROM PONDS AFTER THE SITE HAS BEEN STABILIZED.



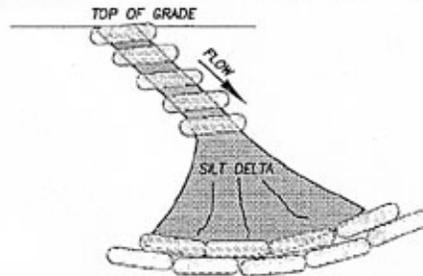
CONTENTS OF SILTRATION PILLOW



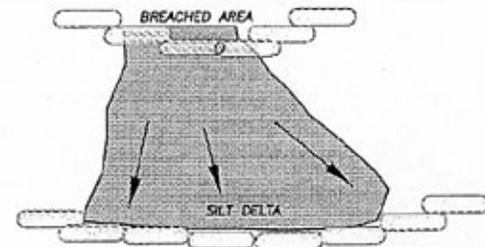
SILTRATION PILLOW MATERIAL OPTIONS

- NATURAL TREATED BURLAP BAG
DIMENSIONS: 23" X 15"
- WHITE POLYPROPYLENE BAG
DIMENSIONS: 20" X 15"
- BLACK POLYPROPYLENE BAG
DIMENSIONS: 19" X 14"

SILT OUTFALL CONTAINMENT (1)



SILT OUTFALL CONTAINMENT (2)



SILTRATION PILLOWS

SITE PLANNING

ENGINEERING



**PLOWE
ENGINEERING**
6776 LAKE DRIVE NE, SUITE 110
LINO LAKES, MN 55014
PHONE: (763) 785-1043
FAX: (763) 786-6007

D:\E\CAD\4446\1061072 BASE2.DWG, DETAILS, 6/22/2006 10:55:41 AM, C5CHLICHTING, HP LASERJET 4, CGS

STRATAGRID GEOGRID - STRENGTH,
LENGTH AND LAYER SPACING PER
SITE SPECIFIC DESIGN, PREPARED BY
A QUALIFIED LOCAL ENGINEER.

FACE BATTER
VARIES (AS
SPECIFIED)

HEIGHT
(VARIES)

BURY
VARIES

SECTION

3

GEOGRID REINFORCED DELTALOK WALL;
TYPICAL

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Designed by Deltalok Inc. / Printed in Canada

No.	Date	Revision	By
-	-	-	-

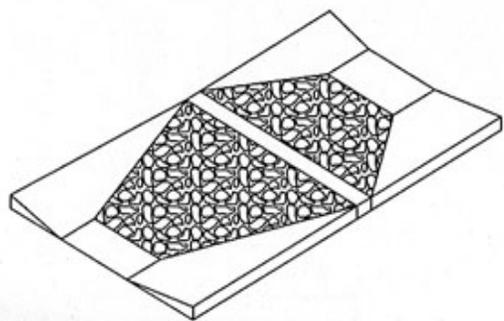
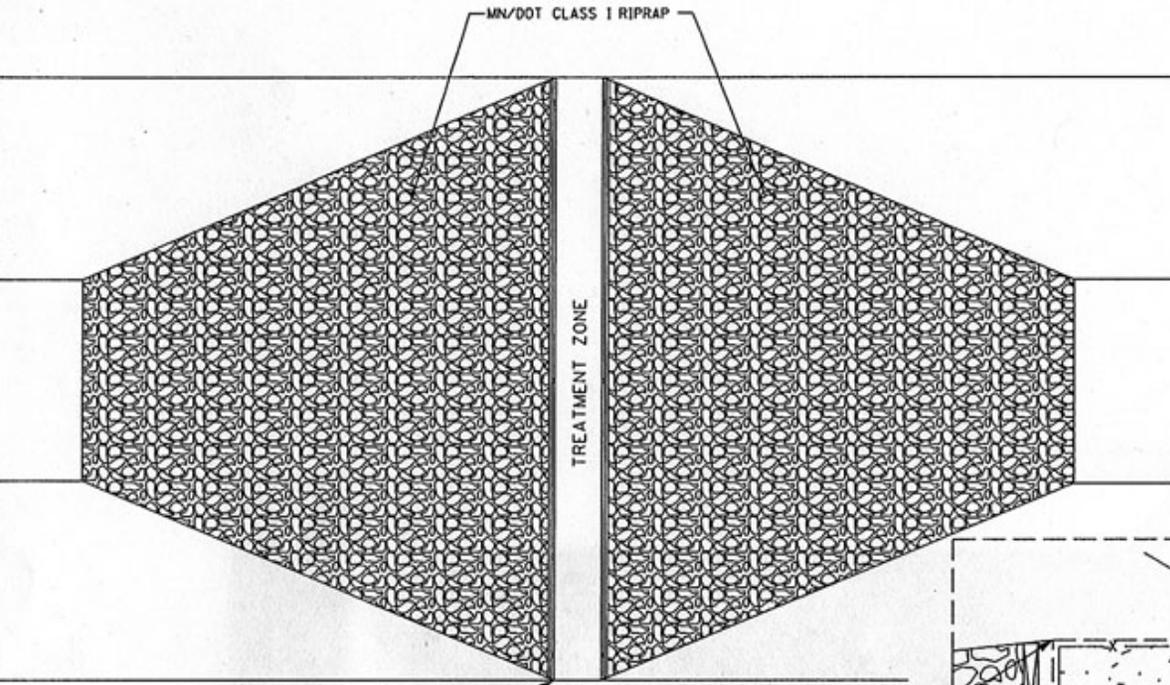
DELTALOK INC.
ECOLOGICAL ENGINEERING
For Erosion Control and Slope Stability
Deltalok Inc.
World Trade Centre
519 - 999 Canada Place
Vancouver, B.C., Canada, V5C 3E1
Tel: 604.605.9918
Fax: 604.609.9918
Toll Free: 877.335.8296

Designed by:	-	PROJECT TITLE CITY, STATE
Checked by:	-	
Doc.:	-	Scale: 3/4"=1'-0"

GEOGRID REINFORCED WALL	
Proj. No.	-
Drawing No.	-

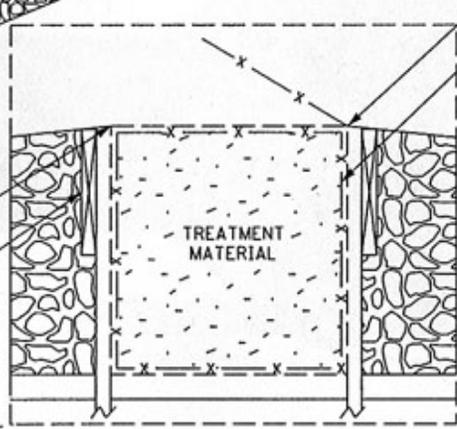
Ditch phytoremediation





TEMPORARY WOOD BRACING

2



WIRE TIE HINGE

GALVANIZED WIRE FENCING MATERIAL

LEGEND

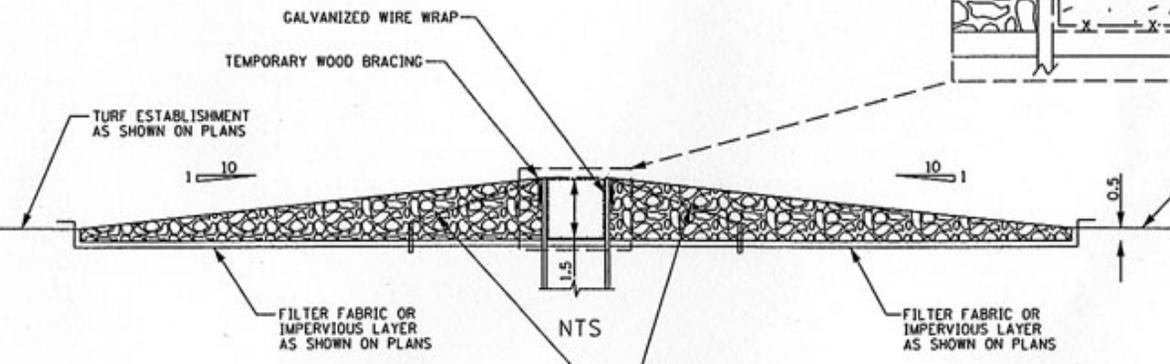
--- FILTER FABRIC

-X-X- GALVANIZED WIRE FENCING

FASTEN LID W/ WIRE TIES

TEMPORARY WOOD BRACING

CONTAMINANT	TREATMENT MATERIAL
HEAVY METALS	PEAT/COMPOST MIXTURE
OILS	ACTIVATED CARBON
VOC/ORGANICS	ACTIVATED CARBON
FECAL MATTER	PEAT/COMPOST MIXTURE
NITROGEN PHOSPHORUS OR POTASIAM	COMPOST OR PEAT/COMPOST MIXTURE
SEDIMENTS	COMPOST AND FLOCCULANTS



TURF ESTABLISHMENT AS SHOWN ON PLANS

0.5

FILTER FABRIC OR IMPERVIOUS LAYER AS SHOWN ON PLANS

NTS

FILTER FABRIC OR IMPERVIOUS LAYER AS SHOWN ON PLANS

GALVANIZED WIRE TIE BACKS, STAKED INTO GROUND

STANDARD SHEET NO. X-XXX,XXX	TITLE
STANDARD APPROVED: XXXXXXXX X, 2005	TEMPORARY EROSION CONTROL BIO DITCH CHECK
SHEET NO. OF SHEETS	